Actiontec™

54 Mbps Wireless PC Card

User Guide

0530-0309-000

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Introduction

Thank you for purchasing the *Action*tec 54 Mbps Wireless PC card. This Wireless PC Card is easy to setup and easy to use. If you're tired of all those messy wires needed to connect a laptop to your home network, take your networking to the next level with the *Action*tec 54 Mbps Wireless PC Card. You'll be able to have full access to your network and share files, printers and even your High-Speed Internet access wirelessly from anywhere within your home. This card uses Wi-Fi5 (a.k.a. IEEE 802.11a) technology.

Package Contents

Make sure the following items came in this package:

- *Action*tec 54 Mbps Wireless PC Card
- Installation CD-ROM
- User's Manual
- Quick Start Installation Guide
- Warranty Card

Minimum System Requirements

- Compatible notebook, PC or handheld device with an available 32-bit Cardbus Type II slot
- 16 MB of RAM
- Windows 98, Windows 98SE, Windows ME, Windows 2000 or Windows XP

Contacting Technical Support

*Action*tec Electronics prides itself on making high-quality, durable, high-performance products. If you need assistance, the *Action*tec Technical Support Department is available seven days a week from 6 a.m. to 11 p.m. (Mountain Time) to provide professional support.

***Action*tec Electronics, Inc.**

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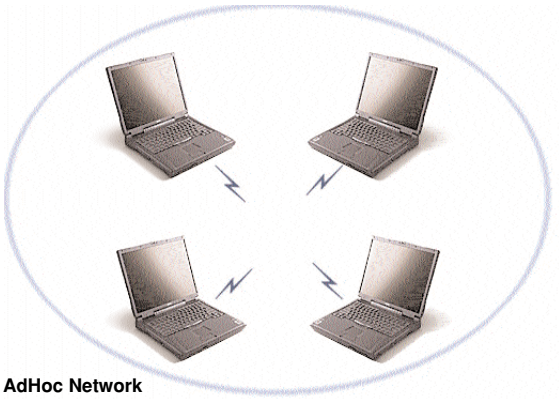
Operating Modes

The *Action*tec 54 Mbps Wireless PC Card can be set to operate in one of two modes: AdHoc mode or Infrastructure mode.

AdHoc Mode

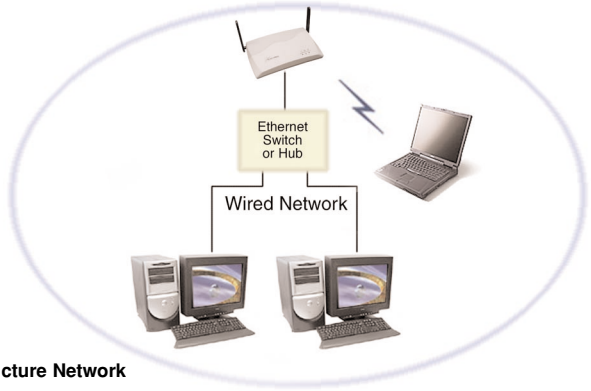
When configured for AdHoc mode, the *Action*tec 54 Mbps Wireless PC Card is able to operate in an environment where a wireless network consists of a number of stations using additional 54 Mbps Wireless Cards without access points. They can share files this way, but are not able to access Wired LAN (Local Area Network) resources.



AdHoc Network

Infrastructure Mode

When configured for Infrastructure mode, the *Action*tec 54 Mbps Wireless PC Card network is able to operate on a network composed of base stations and access points that connect the wireless network to a wired LAN (Local Area Network), allowing wireless computers access to LAN resources, such as file and print servers or existing Internet connectivity.



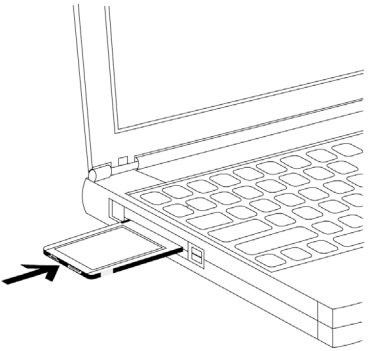
Infrastructure Network

You may reconfigure the 54 Mbps Wireless PC Card at any time by following the steps in this manual.

Installing the 54 Mbps Wireless PC Card

1. Your computer can be on or off, it will not affect the installation process. Locate an available Type II or Type III PCMCIA slot on your laptop. If you are not sure where the slot is, please consult your laptop's user manual.

2. Insert the *Action*tec 54 Mbps Wireless PC Card into the appropriate PCMCIA slot. Your hardware is now installed.



WARNING!!

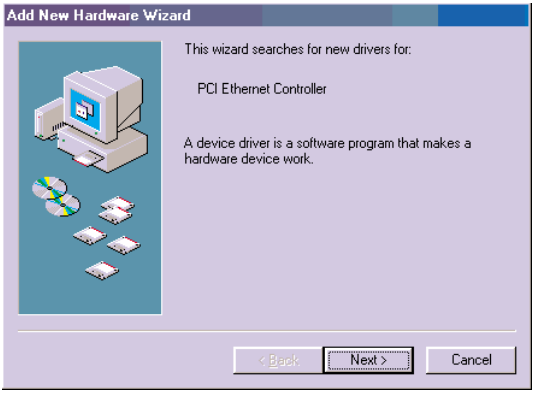
While this device is in operation, a separation distance of at least 20 centimeters must be maintained between the radiating antenna and the body of all persons exposed to the transmitter in order to meet the FCC RF exposure guidelines.

This device complies with Part 15 of FCC Rule., as well as ICES 003 B / NMB 003 B. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation. Modifications not expressly authorized by *Action*tec Electronics may invalidate the user's right to operate this equipment.

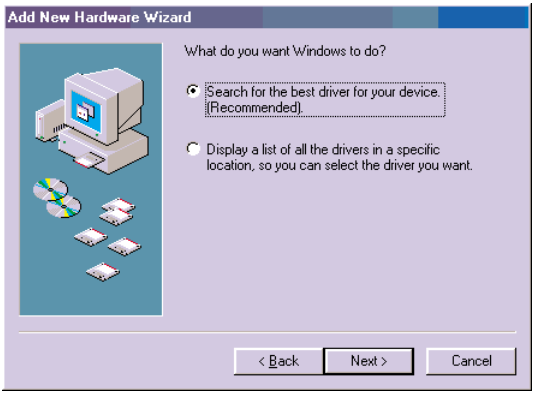
Windows 98 and 98SE

1. Upon restarting Windows, the "New Hardware Found" window will appear.

2. Insert the *Action*tec 54 Mbps Wireless PC Card Installation CD into your CD-ROM drive. Click **Next**.


Add New Hardware Wizard
This wizard searches for new drivers for:
PCI Ethernet Controller
A device driver is a software program that makes a hardware device work.
< Back
Next >
Cancel

3. In the "Add New Hardware Wizard' screen that appears, select the option "Search for the best driver for your device (Recommended)" and click the **Next** button.


Add New Hardware Wizard
What do you want Windows to do?
Search for the best driver for your device. (Recommended)
Display a list of all the drivers in a specific location, so you can select the driver you want.
< Back
Next >
Cancel

4. A screen will display location options to look for the driver. Make sure the box next to "CD-ROM drive " is checked and click **Next**.

Add New Hardware Wizard
Windows will search for new drivers in its driver database on your hard drive, and in any of the following selected locations. Click Next to start the search.
Floppy disk drives
CD-ROM drive
Microsoft Windows Update
Specify a location:
G:\Cabs\WIN98SE
Browse...
< Back
Next >
Cancel

5. Click **Next** to continue.

Add New Hardware Wizard
Windows driver file search for the device:
Actiontec 802.11a Wireless LAN Adapter
Windows is now ready to install the best driver for this device. Click Back to select a different driver, or click Next to continue.
Location of driver:
M:\NET5210B.INF
< Back
Next >
Cancel

6. Click **Finish** to continue to complete the driver installation. Note: In Windows ME, the device manager will show a warning in regards to the driver and Windows Logo testing. This is normal.

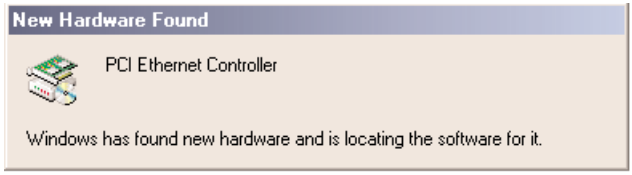
7. Click **Yes** to restart the system.

System Settings Change
To finish setting up your new hardware, you must restart your computer.
Do you want to restart your computer now?
Yes
No

Note: Once the system is restarted, the 54 Mbps Wireless PC Card will display two flashing greet lights.

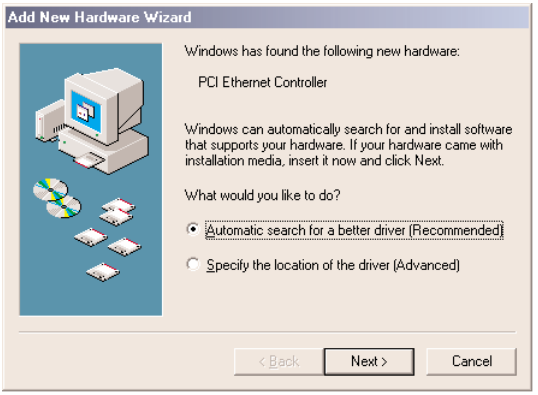
Windows Me

1. Upon restarting Windows, the "New Hardware Found" screen appears.



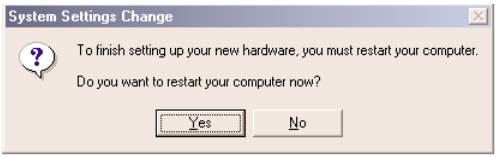
2. Insert the PC Card Installation CD into your CD-ROM drive

3. In the "Add New Hardware Wizard" screen that appears, select the option "Automatic search for a better driver (Recommended)" and click **Next**.


Add New Hardware Wizard
Windows has found the following new hardware:
PCI Ethernet Controller
Windows can automatically search for and install software that supports your hardware. If your hardware came with installation media, insert it now and click Next.
What would you like to do?
Automatic search for a better driver (Recommended)
Specify the location of the driver (Advanced)
< Back
Next >
Cancel

4. Click **Finish** to continue to complete the driver installation. Note: In Windows ME, the device manager will show a warning in regards to the driver and Windows Logo testing. This is normal.

4. Click **Yes** to restart the system.


System Settings Change
To finish setting up your new hardware, you must restart your computer.
Do you want to restart your computer now?
Yes
No

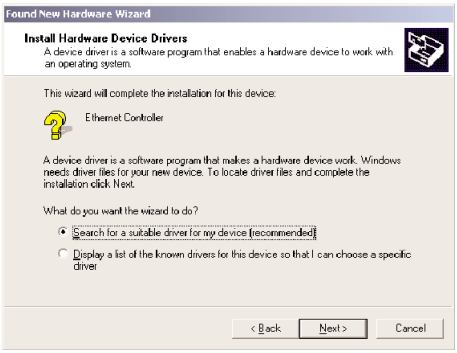
Note: Once the system is restarted, the PC Card will display two flashing green lights.

Windows 2000

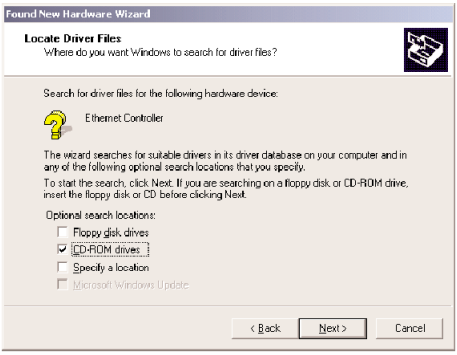
1. After you have installed the PC Card, your computer will display the "Found New Hardware Wizard" window. Click **Next**.

Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install a device driver for a hardware device.
To continue, click Next.
< Back
Next >
Cancel

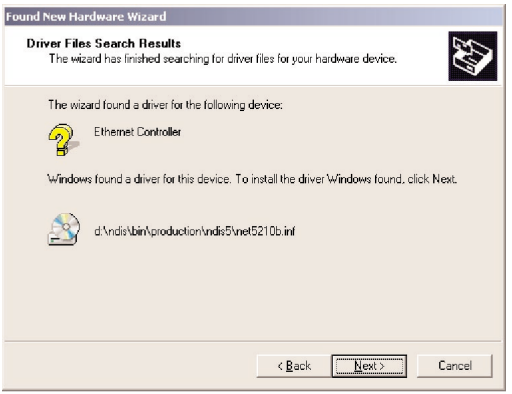
2. Choose "Search for a suitable driver for my device (recommended) and click **Next**.


Found New Hardware Wizard
Install Hardware Device Drivers
A device driver is a software program that enables a hardware device to work with an operating system.
This wizard will complete the installation for this device:
Ethernet Controller
A device driver is a software program that makes a hardware device work. Windows needs driver files for your new device. To locate driver files and complete the installation click Next.
What do you want the wizard to do?
Search for a suitable driver for my device (recommended)
Display a list of the known drivers for this device so that I can choose a specific driver
< Back
Next >
Cancel

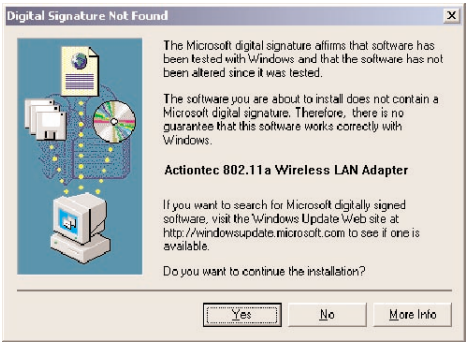
3. Insert the *Action*tec 54 Mbps Wireless PC Card Installation CD into your CD-ROM drive. Choose the "CD-ROM Drive" option and click **Next**.


Found New Hardware Wizard
Locate Driver Files
Where do you want Windows to search for driver files?
Search for driver files for the following hardware device:
Ethernet Controller
The wizard searches for suitable drivers in its driver database on your computer and in any of the following optional search locations that you specify.
To start the search, click Next. If you are searching on a floppy disk or CD-ROM drive, insert the floppy disk or CD before clicking Next.
Optional search locations:
Floppy disk drives
CD-ROM drives
Specify a location
Microsoft Windows Update
< Back
Next >
Cancel

4. When the appropriate driver is found, click **Next**.


Found New Hardware Wizard
Driver Files Search Results
The wizard has finished searching for driver files for your hardware device.
The wizard found a driver for the following device:
Ethernet Controller
Windows found a driver for this device. To install the driver Windows found, click Next.
d:\ndis\bin\production\ndis5\net5210b.inf
< Back
Next >
Cancel

5. Since the driver does not have a digital signature from Microsoft, a warning message may appear. If so, click Yes and proceed with the installation.

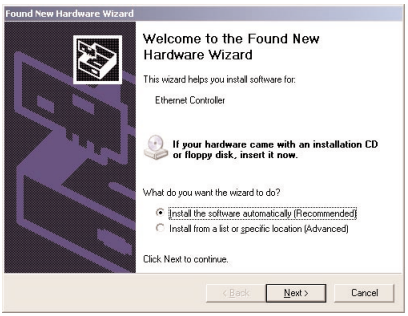

Digital Signature Not Found
The Microsoft digital signature affirms that software has been tested with Windows and that the software has not been altered since it was tested.
The software you are about to install does not contain a Microsoft digital signature. Therefore, there is no guarantee that this software works correctly with Windows.
Actiontec 802.11a Wireless LAN Adapter
If you want to search for Microsoft digitally signed software, visit the Windows Update Web site at http://windowsupdate.microsoft.com to see if one is available.
Do you want to continue the installation?
Yes
No
More Info

6. Click Finish to complete the driver installation.

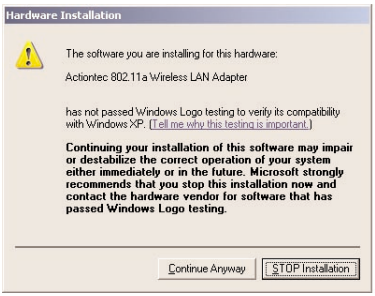
Found New Hardware Wizard
Completing the Found New Hardware Wizard
Actiontec 802.11a Wireless LAN Adapter
Windows has finished installing the software for this device.
To close this wizard, click Finish.
< Back
Finish
Cancel

Windows XP

1. After installing the PC Card, the "Found New Hardware Wizard" will appear. Insert the *Action*tec 54 Mbps Wireless PC Card Installation CD into your CD-ROM drive. Choose the "Install the software automatically (recommended)" option and click **Next**.


Found New Hardware Wizard
Welcome to the Found New Hardware Wizard
This wizard helps you install software for:
Ethernet Controller
If your hardware came with an installation CD or floppy disk, insert it now.
What do you want the wizard to do?
Install the software automatically (Recommended)
Install from a list or specific location (Advanced)
Click Next to continue.
< Back
Next >
Cancel

2. A window displaying that the hardware has not passed Windows logo testing may appear. Click **Continue Anyway** to install the driver.

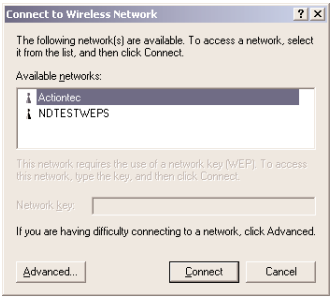

Hardware Installation
The software you are installing for this hardware:
Actiontec 802.11a Wireless LAN Adapter
has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)
Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.
Continue Anyway
STOP Installation

3. The wizard install the drivers automatically. Click **Finish** to complete the installation.

Found New Hardware Wizard
Completing the Found New Hardware Wizard
The wizard has finished installing the software for:
Actiontec 802.11a Wireless LAN Adapter
Click Finish to close the wizard.
< Back
Finish
Cancel

6. Right-click on the Networks icon in the task bar and select "View Available Wireless networks" from the pop-up menu.

6. Select the network you wish to connect to and click **Connect**.


Connect to Wireless Network
The following network(s) are available. To access a network, select it from the list, and then click Connect.
Available networks:
Actiontec
NDTESTWEPS
This network requires the use of a network key (WEP). To access this network, type the key, and then click Connect.
Network key:
If you are having difficulty connecting to a network, click Advanced.
Advanced...
Connect
Cancel

6. A status window will appear over the network icon in the task bar showing the network name and signal strength.

Installing the Configuration Utility

Windows 98, 98SE, Me, and 2000

1. After the system restarts, insert the *Action*tec 54 Mbps Wireless PC Card CD-ROM in the computer's CD-ROM drive if you have not done so already. The InstallShield Wizard will launch when drive door closes. If the InstallShield Wizard has not launched, look for the file named "SETUP.EXE" in the root directory of the *Action*tec 54 Mbps Wireless PC Card Installation CD-ROM and double-click on it.

2. The InstallShield Wizard "Welcome" screen will appear and notify you that it is ready to install the 802.11a Wireless LAN (54Mbps Wireless PC Card) Configuration Utility. Click **Next** to continue.

3. The InstallShield Wizard will proceed with the installation. Once completed, click **Finish** to continue.

   Note: For 98/98 SE users - the Windows Management Information (WMI) utility will now be installed. Follow the onscreen instructions to complete the installation. Click **OK** to restart.If the WMI tools are already installed on the computer, click **No** to abort the installation.

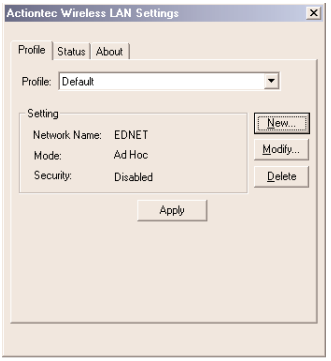
Setting Infrastructure Mode

Windows 98, 98SE, Me, and 2000

This section defines the process of configuring the *Action*tec 54 Mbps Wireless PC Card in Infrastructure mode.

1. Under the "Profile" tab, select either of the options:

   New: Use this option to create a new network profile.
   Modify: Use this option to make changes to an existing network profile.
   Delete: Use this option to erase an existing network profile.

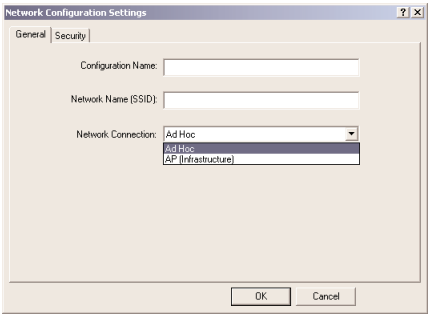


2. Under the "General" tab, make sure the fields are set to the following:

   Configuration Name: This field identifies the configuration. This name must be unique. Configuration names are case insensitive.

   Network name (SSID): This is the name of the Wi-Fi5 (IEEE 802.11a) wireless network. This field has a maximum limit of 32 characters. If this field is left blank, the *Action*tec 54 Mbps Wireless PC Card connects to the AP (access point) with the best signal strength.

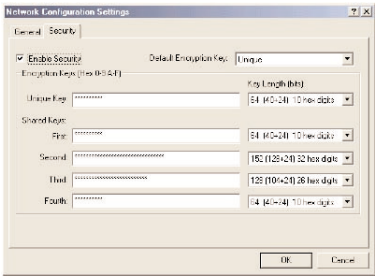
   Network Connection: AP (Infrastructure)



3. Once finished, click **OK**.

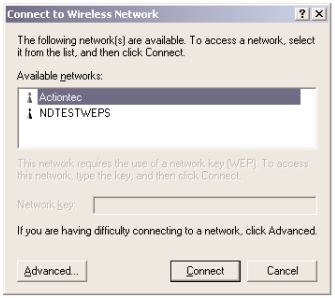
4. Security

   Usually, infrastructure mode is used as an environment where Access Points are installed and maintained by an IT (Information Technology) staff. You must configure security to make sure that only stations with the appropriate keys can receive data. The *Action*tec 54 Mbps Wireless PC Card supports key lengths of 64, 128, and 152 bits. Encryption and decryption keys should be provided by your IT Staff.

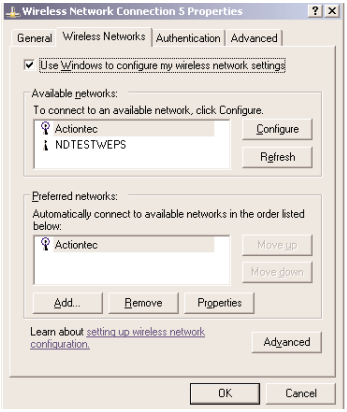


Windows XP

1. Bring up the settings screen again by right-clicking on the networks icon in the task bar and select "View Available Wireless networks" from the pop-up menu. Select a network and click **Advanced** for more configuration options.


Connect to Wireless Network
The following network(s) are available. To access a network, select it from the list, and then click Connect.
Available networks:
Actiontec
NDTESTWEPS
This network requires the use of a network key (WEP). To access this network, type the key, and then click Connect.
Network key:
If you are having difficulty connecting to a network, click Advanced.
Advanced...
Connect
Cancel

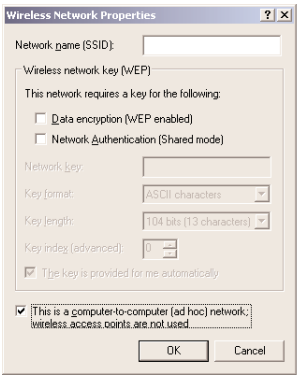
2. Under the "Wireless Networks" tab select the network you wish to connect to. Click **Configure** from the "Available networks:" list. (If the network that you wish to connect to is not listed, click **Add** from the "Preferred networks:" list.)



3. Enter the SSID for the network you wish to connect. You can also set the WEP encryption and encryption key information for the network. If the access point is configured with encryption, check the "Data encryption (WEP enabled)" box and uncheck the "The key is provided for me automatically" box.

   In the "Network key" field, type in the encryption keys that match the 54Mbpx Wireless Access Point that you want to connect to. Once you enter these numbers, the "Key format" and "Key length" fields will automatically change. Do not change these two fields.

   Click **OK.**



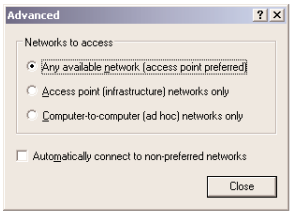
4. The "Wireless Network Connection Properties" screen will appear. Click **OK.**

5. You can also specify the types of networks to connect to by clicking Advanced in the "Wireless Network Connection Properties" window. Select and option and click **Close**.

   Any available network: will give priority to infrastructure mode networks but will also connect to an ad-hoc network if available.

   Access point: connects to infrastructure mode networks only

   Computer-to-computer: connects to ad-hoc networks only



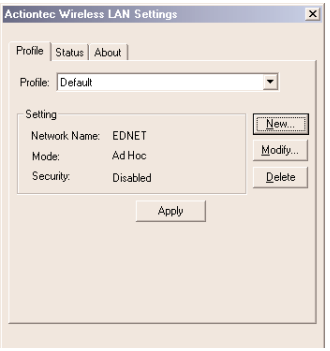
Setting AdHoc Mode

Windows 98, 98SE, Me, and 2000

To configure the *Action*tec 54Mbps Wireless PC Card, click the right mouse button on the Wireless icon, then click on Configuration in the pop-up menu. Proceed to make changes to the *Action*tec 54Mbps Wireless PC Card.

1. Under the "Profile" tab, select either of the options:

   New: Use this option to create a new network profile.
   Modify: Use this option to make changes to an existing network profile.
   Delete: Use this option to erase an existing network profile.

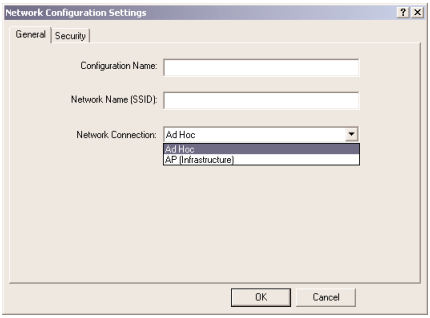


2 Under the "General" tab, enter the following information:

   Configuration Name: This field identifies the configuration. This name must be unique. Configuration names are case insensitive.

   Network name (SSID): A network name is mandatory for AdHoc mode. The SSID for all stations in a single AdHoc name must be the same.

Network Connection: AdHoc.

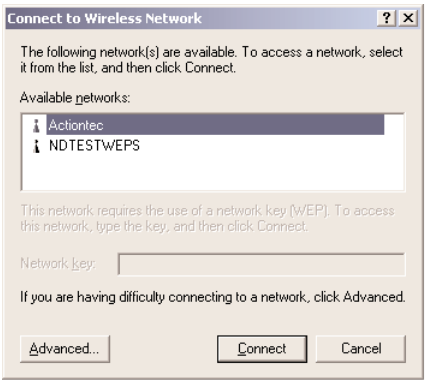


3. You can optionally set up other properties, but because the duration of the AdHoc network tends to be limited, security features are not typically required and can be disabled.

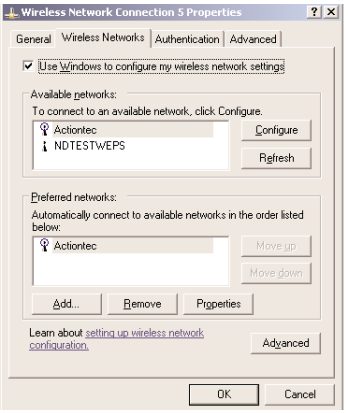
4. Click OK when the properties are set correctly. The system needs to reboot in order for the changes to take effect.

Windows XP

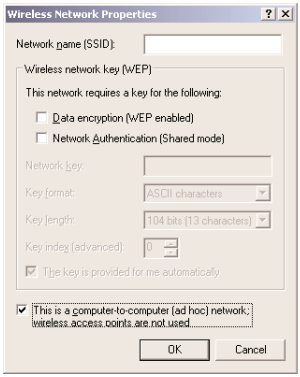
1. Bring up the settings screen again by right-clicking on the networks icon in the task bar and select "View Available Wireless networks" from the pop-up menu. Select a network and click **Advanced** for more configuration options.


Connect to Wireless Network
The following network(s) are available. To access a network, select it from the list, and then click Connect.
Available networks:
Actiontec
NDTESTWEPS
This network requires the use of a network key (WEP). To access this network, type the key, and then click Connect.
Network key:
If you are having difficulty connecting to a network, click Advanced.
Advanced...
Connect
Cancel

2. Under the "Wireless Networks" tab select the network you wish to configure and click **Properties**.



3. Select the "This is a computer-to-computer (ad-hoc) network, wireless access points are not used" option and click **OK**.

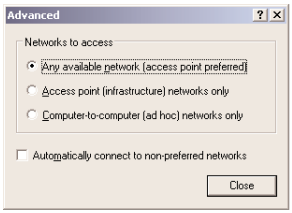


4. You can also specify the types of networks to connect to by clicking Advanced in the "Wireless Network Connection Properties" window. Select and option and click **Close**.

   Any available network: will give priority to infrastructure mode networks but will also connect to an ad-hoc network if available.

   Access point: connects to infrastructure mode networks only

   Computer-to-computer: connects to ad-hoc networks only



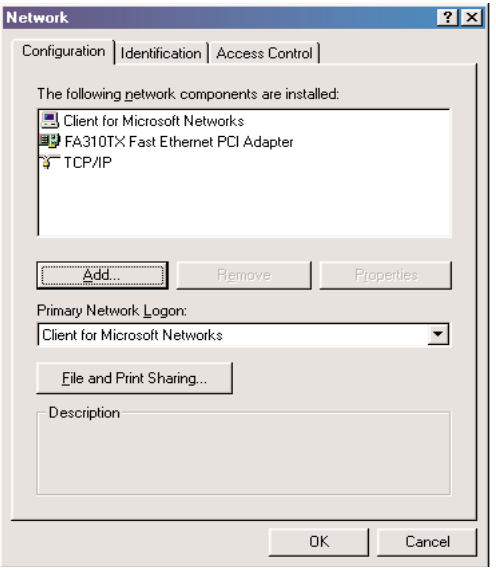
Configuring File and Print Sharing

You can establish a network that will allow you to share files and printers. This is an easy method to set up a network in your home or small office. Please follow these steps to setup file and print sharing:

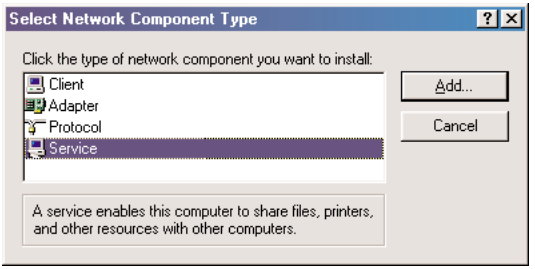
Windows 98, 98SE and Me

1. On your computer's desktop click Start, Settings and Control Panel. In the "Control Panel" window, double-click the Network icon.

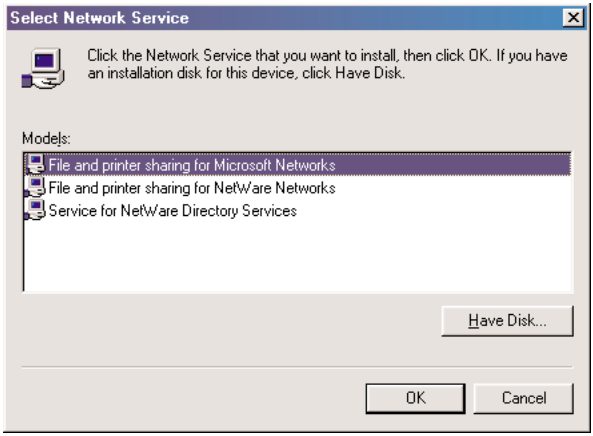
2. The following "Network" screen should appear. Click the **Add** button.



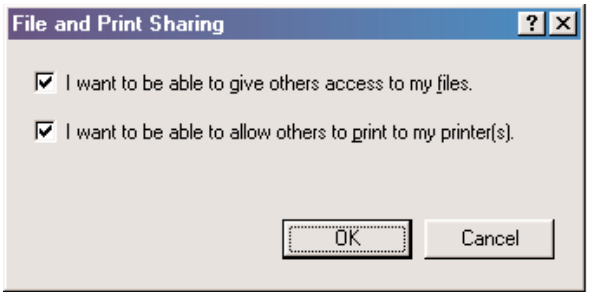
3. In the "Select Network Component Type" screen, click Service and then click the **Add** button.



4. In the following screen, select "File and printer sharing for Microsoft Networks" from the given list and click **OK**.


Select Network Service
Click the Network Service that you want to install, then click OK. If you have an installation disk for this device, click Have Disk.
Models:
File and printer sharing for Microsoft Networks
File and printer sharing for NetWare Networks
Service for NetWare Directory Services
Have Disk...
OK
Cancel

5. In the "File and Print Sharing" screen, make sure that both of the selections have a check mark beside them. If not, click on the box next to each statement and then click **OK.**

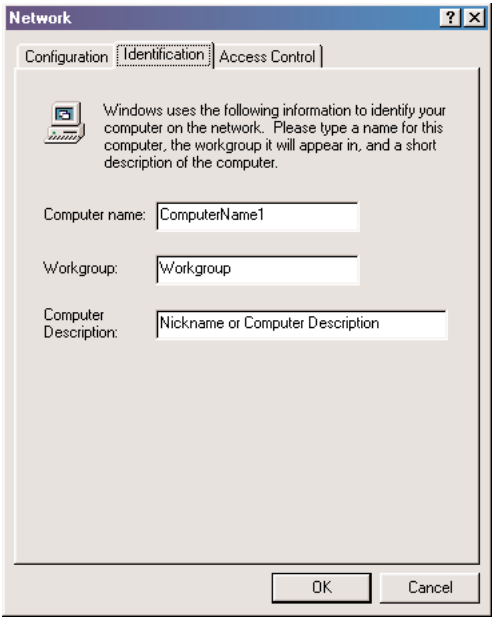

File and Print Sharing
I want to be able to give others access to my files.
I want to be able to allow others to print to my printer(s).
OK
Cancel

6. After you have clicked **OK**, you will return to the network screen from step 2. Click on the Identification tab.

   Computer Name: In this field you can type any name you want. (i.e. My Computer, John, CPU654) Do not use the same name for each computer you wish to have on your network.

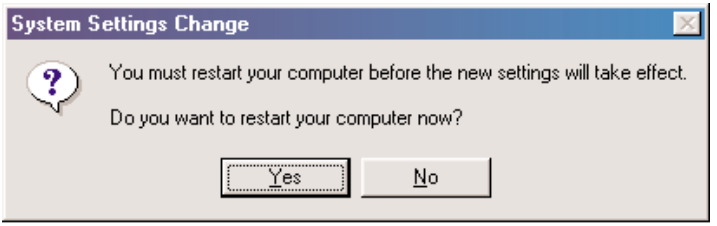
   Workgroup: This field enables you to set a unique name for your network. This name must be set up on every other computer you wish to have on your network.

   Computer Description: You can enter anything you wish. Traditionally, the location name or main user's name is used in this field.

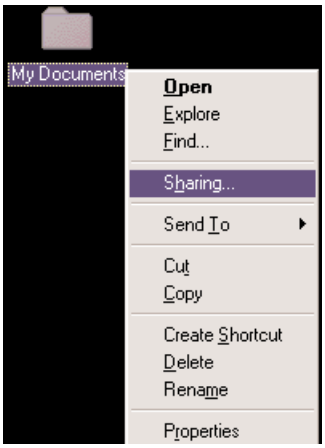


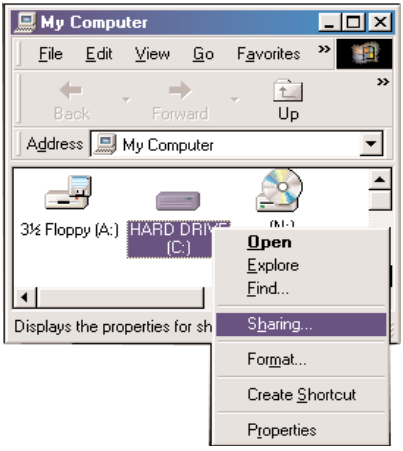
7. Click on the Configuration tab. This will take you back to the screen from step 2. In the "Primary Network Logon:" box, located just above the "File and Print Sharing" button, make sure that Client for Microsoft Networks is selected. If not, click the down arrow and select it from the given list. Click **OK**.

8. A screen will appear asking you to restart your computer. Click **Yes** to restart the computer. If you do not see this screen please restart your computer manually. After your computer restarts you will be asked to supply a User Name and Password. Enter whatever you would like but be sure to write down these values, as they will enable you to access your network.

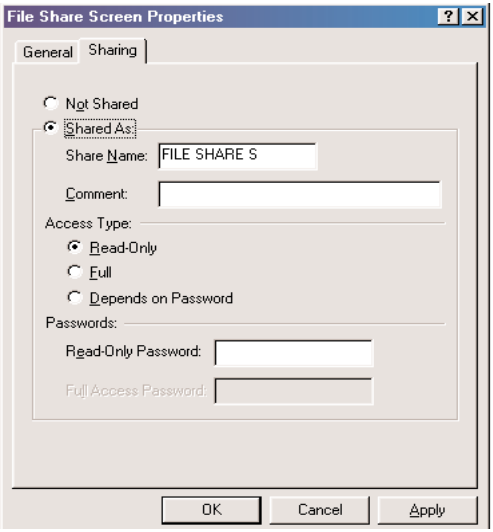

System Settings Change
You must restart your computer before the new settings will take effect.
Do you want to restart your computer now?
Yes
No

9. After your computer has restarted and you entered a password and user name, you must enable a file or drive for sharing. Locate the file or drive you wish to share. (The easiest way to do this is using Windows Explorer.) Right-click on the File or Drive you wish to share. In the pop-up menu, select Sharing.





10. The following screen will appear. Select Shared As. This will enable other users on your network to see the file or drive you selected. Then you can chose the Access Type.

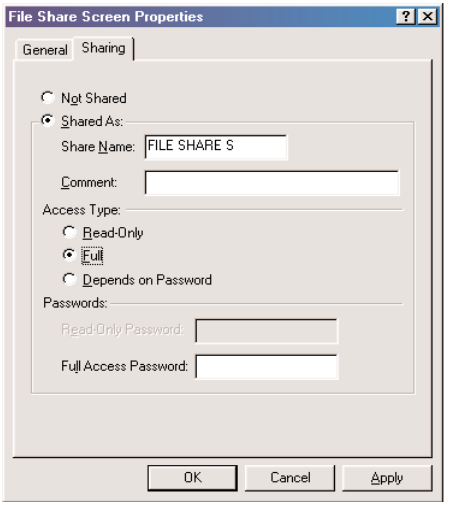


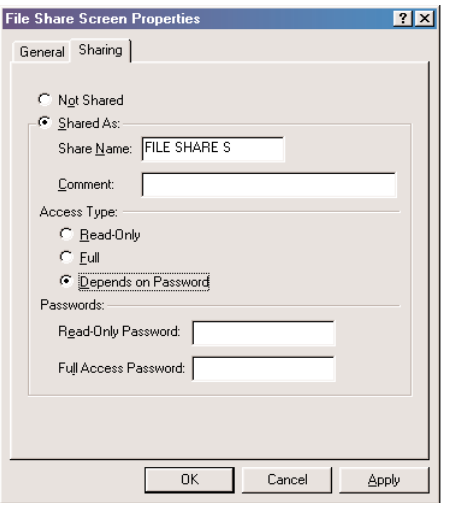
Read Only: This will allow other users on your network to view and read the file or drive you selected. They will not be able to modify it in any way. You can further restrict their privileges by entering a password in the appropriate field.

Full: This will allow other users on your network to read, modify, move and delete any information in the shared drive or file. You can further restrict their privileges by entering a user name and password.

Depends on Password: This will allow you to set both Read Only and Full access on the shared file or drive. The level of access will depend on the passwords you enter in the appropriate field.

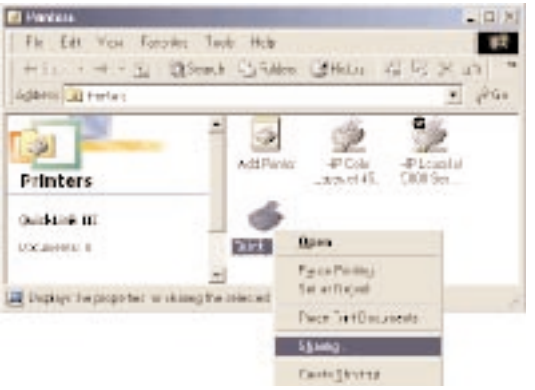
When you are finished click **Apply** and then **OK**.





11. Next, you need to share your printer. On your desktop, click Start, Settings, and Printers.

12. Right-click on the printer you want to share. Select Sharing from the given list.

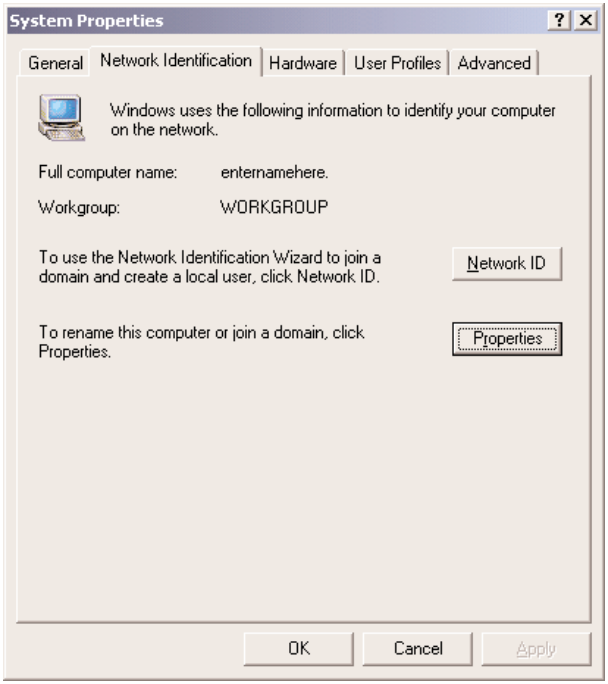


13. The next step will be to enable the sharing by selecting the Share As. This will automatically insert a default name for the share name. You can set a password for the printer at this time if you want to restrict who on the network can use this resource. You can also set the default printer settings by modifying information on the other tabs of this window.

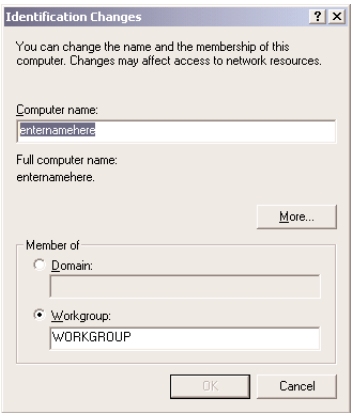
Windows 2000

1. After you have installed and configured your *Action*tec 54 Mbps Wireless PC Card, Windows 2000 will automatically enable file… The only item that needs to be altered is your workgroup settings. All the computers on your network must have the same workgroup name but different computer names. To check or change this right-click on the My Computer icon on your desktop, then select Properties from the given list.

2. In the "System Properties" windows, click on the Network Identification tab. If the "Workgroup" name is already the same as all the other computers on your network, you do not need to change it, and you can click **OK**. If it is not the same, click **Properties**.

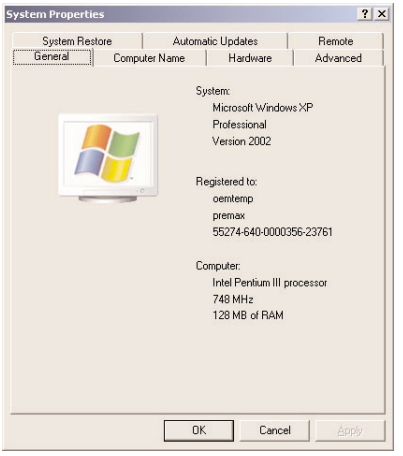


3. In the "Computer Name:" field, type a name that is different from the other PCs on your network. Then, in the "Workgroup" field, type the name that you are using to identify your network. This will be the same on each computer on your network. Click **OK** and you will return to the "Network Properties" window. Click **OK** again and even if you are not asked to do so, restart your computer.

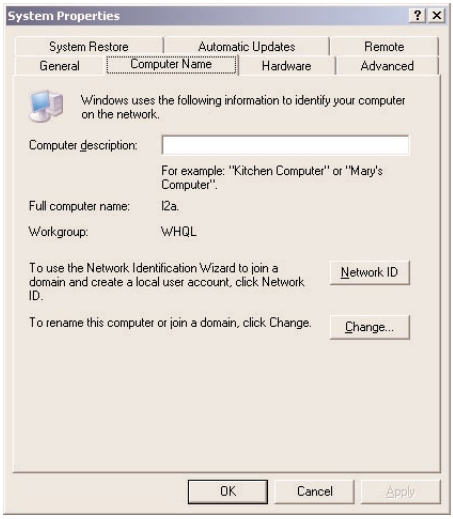


Windows XP

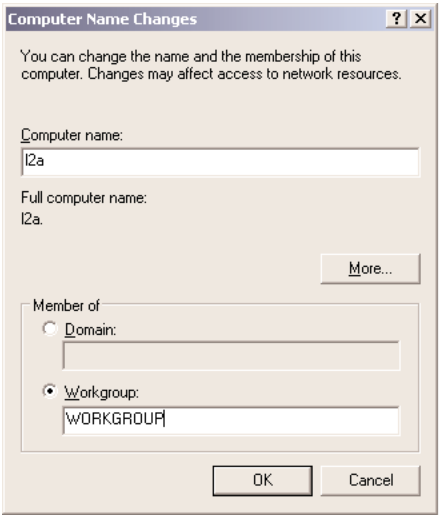
1. Open the System Properties window by right clicking the My Computer icon and selecting **Properties**.



2. Select the “Computer Name” tab. Click **Change...** to rename the computer.



3. Enter a new computer name and workgroup name. Click **OK** when finished.



4. Restart your computer.

Troubleshooting

This section provides solutions to common problems that may arise during the installation and operation of the *Action*tec 54 Mbps Wireless PC Card. If you are having problems, refer to the section below to find an answer. Please contact *Action*tec's technical support for further assistance.

1. **My computer does not recognize the *Action*tec 54 Mbps (802.11a) Wireless PC Card.**
   Make sure the 54 Mbps Wireless PC Card is properly inserted into a 32 bit CardBus slot. If windows does not detect the hardware upon insertion of the card, the system could have a previous *Action*tec NDIS driver installed. Remove the old driver and try again.

2. **The *Action*tec 802.11a Wireless PC Card does not work properly after the driver is installed.**
   Reinsert the 54 Mbps Wireless PC Card into the slot. A beep should be heard if the adapter is properly inserted. Go to the Device Manager and make sure the *Action*tec 802.11a Wireless LAN Adapter exists under the network adapters device node. If you see the yellow exclamation then there are conflicting resources. In this case, make sure the computer system has a free IRQ and make sure you have installed the proper driver. Uninstall the driver, restart the system, and repeat the driver installation steps if necessary.

3. **Stations cannot associate in Ad-Hoc mode.**
   Make sure the same service set identifier is specified for all stations that need to join the same AdHoc network. Set up one station to establish a BSS and wait briefly before setting up other stations. This prevents several stations from trying to establish a BSS at the same time, which can result in multiple singular BSSs being established, rather than a single BSS with multiple stations associated to it.

4. **The station cannot access the Internet in the Infrastructure configuration.**
   Make sure the station is associated and joined with the AP (Access Point). If Wired Equivalent Privacy (WEP) security is enabled on the AP, the station must have the proper WEP keys specified. Also make sure TCP/IP properties are correctly configured.

Frequently Asked Questions

1. **How fast can I access my network?**
   The *Action*tec 54 Mbps Wireless PC Card supports all IEEE 802.11a data rates of 6, 9, 12, 24, 36, 48, and 54 Mbps and Turbo Mode at 72 Mbps.

2. **What is the range for network access, and how reliable is the connection?**
   The range for network access is approximately 100 meters (300 feet) indoors and 300 meters (1,000 feet) outdoors.

3. **Can I operate an 802.11b network in the same area or vicinity?**
   Networks based on the IEEE 802.11b standard can coexist with networks based on the *Action*tec 54 Mbps Wireless PC Card because each network operates in its own frequency band. IEEE 802..11b operates at 2.4 GHz while IEEE 802.11a operates at 5.0 GHz

4. **Can I perform realtime multimedia functions QOS?**
   Yes, the *Action*tec 54 Mbps Wireless PC Card supports Quality of Service for realtime multimedia applications. This allows multiple video, audio, voice, data, and telephony applications to coexist on the same radio channel. The *Action*tec 54 Mbps Wireless PC Card is compatible with CableLabs CQoS, Microsoft GQoS and IEEE 802.1 p/q Quality of Service.

5. **Can I share my network resources, such as printers, drivers and my shared Internet connection?**
   The *Action*tec 54 Mbps Wireless PC Card is a fully functional networking device, it allows ICS (Internet connection sharing), printer sharing, and drive sharing. Please refer to section V of this manual, "Configuring and File and Print Sharing," for further help.

6. **Will my network be affected by my cordless phone or microwave oven?**
   No. The *Action*tec 54 Mbps Wireless PC Card operates at a radio frequency of 5.0GHz, most microwaves operate around the 2.4 GHz range, and most handsets at 900MHz to 2.4 GHz. Therefore, enough of a spectral separation exists for the operation of IEEE 802.11a networks without interference.

Note: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to connect the interference by one or more of the following measures:

-Reorient the receiving antenna
-Increase the separation between the equipment and receiver
-Move the computer away from the receiver
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

Radio Frequency Interference Requirements: This device is restricted to indoor use due to its operation in the 5.15 to 5.25 GHz frequency range. FCC requires this product to be used indoors for the frequency range 5.15 to 5.25 GHz to reduce the potential for harmful interference to co-channel Mobile Satellite systems.

High power radar are allocated as primary users of the 5.25 to 5.35 GHz and 5.65 to 5.85 GHz bands. These radar stations can cause interference with and /or damage this device.

***Action*tec Electronics, Inc. Limited Warranty**

Hardware: *Action*tec Electronics Inc. warrants to the end user ("Customer") that this hardware product will be free from defects in workmanship and materials, under normal use and service, for twelve (12) months from the date of purchase from *Action*tec Electronics or its authorized reseller.

*Action*tec Electronics' sole obligation under this express warranty shall be, at *Action*tec's option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, *Action*tec Electronics may, in its sole discretion, refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of *Action*tec Electronics Inc. Replacement products may be new or reconditioned. *Action*tec Electronics warrants any replaced or repaired product or part for ninety (90) days

from shipment, or the remainder of the initial warranty period, whichever is longer.

Software: *Action*tec Electronics warrants to Customer that each software program licensed from it will perform in substantial conformance to its program specifications, for a period of ninety (90) days from the date of purchase from *Action*tec Electronics or its authorized reseller. *Action*tec Electronics warrants the media containing software against failure during the warranty period. The only updates that will be provided are at the sole discretion of *Action*tec Electronics and will only be available for download at the *Action*tec web site, www.*action*tec.com. *Action*tec Electronics' sole obligation under this express warranty shall be, at *Action*tec Electronics' option and expense, to refund the purchase price paid by Customer for any defective software product, or to replace any defective media with software which substantially conforms to applicable *Action*tec Electronics published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. *Action*tec Electronics makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third-party products listed in the *Action*tec Electronics software product documentation or specifications as being compatible, *Action*tec Electronics will make reasonable efforts to provide compatibility, except where the non-compatibility is caused by a "bug" or defect in the third party's product or from use of the software product not in accordance with *Action*tec Electronics published specifications or User Guide.

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tracking of the package. The repaired or replaced item will be shipped to Customer, at *Action*tec Electronics' expense, not later than thirty (30) days after *Action*tec Electronics receives the defective product.

Return the product to:

In the United States:
*Action*tec Electronics, Inc
760 North Mary Avenue
Sunnyvale, CA 94085

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Dispute Resolution: The customer may contact the Director of Technical Support in the event the Customer is not satisfied with *Action*tec Electronics response to the complaint. In the event that the Customer is still not satisfied with the response of the Director of Technical Support, the Customer is instructed to contact the Director of Marketing. In the event that the Customer is still not satisfied with the response of the Director of Marketing, the Customer is instructed to contact the Chief Financial Officer and/or President.

Governing Law: This Limited Warranty shall be governed by the laws of the State of California, U.S.A. excluding its conflicts of laws principles and excluding the United Nations Convention on Contracts for the International Sale of Goods.